

Serial No.: 10/542,214
Case No.: 21317YP
Page No.: 2

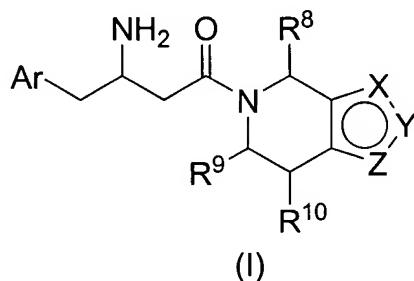
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Cancel Claims 54-56.

Listing of Claims:

1. (original) A compound of structural formula I:



or a pharmaceutically acceptable salt thereof; wherein
each n is independently 0, 1, or 2;

X, Y and Z are independently selected from the group consisting of:

- (1) CR¹,
- (2) NR²,
- (3) N,
- (4) O, and
- (5) S;

with the provisos that at least one of X, Y and Z is not CR¹ and two of X, Y, and Z cannot be O and/or S;

Ar is phenyl substituted with one to five R³ substituents;

each R¹ is independently selected from the group consisting of
hydrogen,

halogen,

hydroxy,

cyano,

C₁₋₁₀ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents

independently selected from halogen or hydroxy,

C₁₋₁₀ alkoxy, wherein alkoxy is unsubstituted or substituted with one to five substituents

independently selected from halogen or hydroxy,

C₁₋₁₀ alkylthio, wherein alkylthio is unsubstituted or substituted with one to five substituents

independently selected from halogen or hydroxy,

C₂₋₁₀ alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents

independently selected from halogen, hydroxy, COOH, and COOC₁₋₆ alkyl,

(CH₂)_nCOOH,

(CH₂)_nCOOC₁₋₆ alkyl,

(CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and morpholine wherein said heterocyclic ring is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

(CH₂)_n-NR⁴R⁵,

(CH₂)_n-OCONR⁴R⁵,

(CH₂)_n-SO₂NR⁴R⁵,

(CH₂)_n-SO₂R⁶,

(CH₂)_n-NR⁷SO₂R⁶,

(CH₂)_n-NR⁷CONR⁴R⁵,

(CH₂)_n-NR⁷COR⁷,

(CH₂)_n-NR⁷CO₂R⁶,
(CH₂)_n-COR⁷,
(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
(CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and
(CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,
wherein any methylene (CH₂) carbon atom in R¹ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens;

each R² is independently selected from the group consisting of
hydrogen,
C₁₋₁₀ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,
C₂₋₁₀ alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,
(CH₂)_nCOOH,
(CH₂)_nCOOC₁₋₆ alkyl,
(CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl,

wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens; or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and morpholine wherein said heterocyclic ring is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, (CH₂)_nCOOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens or one phenyl; (CH₂)_n-COR⁷, (CH₂)_n-SO₂NR⁴R⁵, (CH₂)_n-SO₂R⁶, (CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, (CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, C₁₋₆ alkyloxycarbonyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, (CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and (CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, wherein any methylene (CH₂) carbon atom in R² is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens;

each R³ is independently selected from the group consisting of
hydrogen,
halogen,
cyano,
hydroxy,
C₁₋₆ alkyl, unsubstituted or substituted with one to five halogens, and
C₁₋₆ alkoxy, unsubstituted or substituted with one to five halogens;

R⁶ is independently selected from the group consisting of tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and wherein any methylene (CH₂) carbon atom in R⁶ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, C₁₋₄ alkyl, and C₁₋₄ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

each R⁷ is hydrogen or R⁶;

R⁸, R⁹ and R¹⁰ are each independently selected from the group consisting of
hydrogen,
cyano,
(CH₂)_nCOOH,
(CH₂)_nCOOC₁₋₆ alkyl,
C₁₋₆ alkyloxycarbonyl,
C₁₋₁₀ alkyl, unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkoxy, and phenyl-C₁₋₃ alkoxy, wherein alkoxy is unsubstituted or substituted with one to five halogens,
(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-heteroaryl, wherein heteroaryl is unsubstituted or substituted with one to three substituents independently selected from hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-heterocyclyl, wherein heterocyclyl is unsubstituted or substituted with one to three substituents independently selected from oxo, hydroxy, halogen, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

(CH₂)_n-C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy,

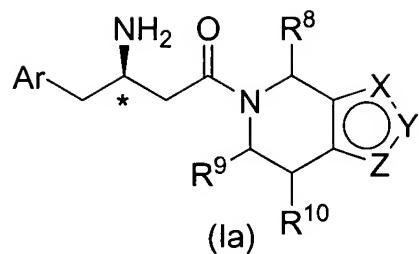
wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and

(CH₂)_nCONR⁴R⁵, wherein R⁴ and R⁵ are independently selected from the group consisting of hydrogen, tetrazolyl, thiazolyl, (CH₂)_n-phenyl, (CH₂)_n-C₃₋₆ cycloalkyl, and C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five halogens and wherein phenyl and cycloalkyl are unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens;

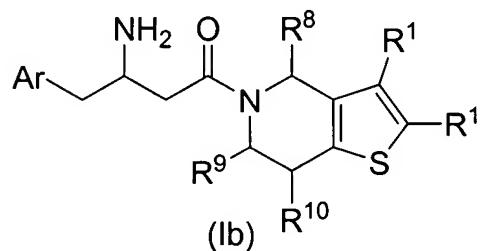
or R⁴ and R⁵ together with the nitrogen atom to which they are attached form a heterocyclic ring selected from azetidine, pyrrolidine, piperidine, piperazine, and morpholine wherein said heterocyclic ring is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, (CH₂)_nCOOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens or one phenyl; and

wherein any methylene (CH₂) carbon atom in R⁸, R⁹ or R¹⁰ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

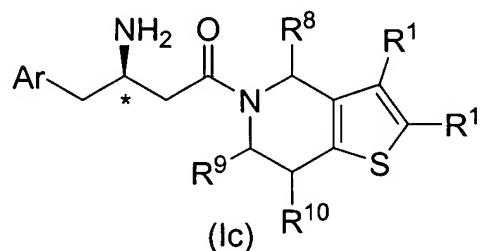
2. (original) The compound of Claim 1 of the structural formula Ia wherein the carbon atom marked with an * has the *R* stereochemical configuration



3. (original) The compound of Claim 1 of the structural formula Ib

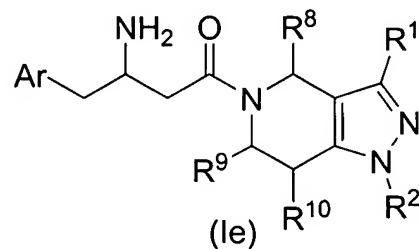


4. (original) The compound of Claim 3 of the structural formula Ic wherein the carbon atom marked with an * has the *R* stereochemical configuration

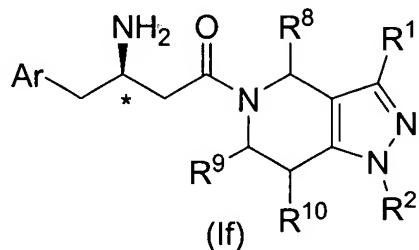


5. (original) The compound of Claim 3 wherein R9 and R10 are hydrogen.

6. (original) The compound of Claim 1 of the structural formula Ie

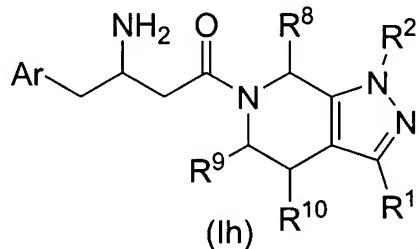


7. (original) The compound of Claim 6 of the structural formula If wherein the carbon atom marked with an * has the *R* stereochemical configuration

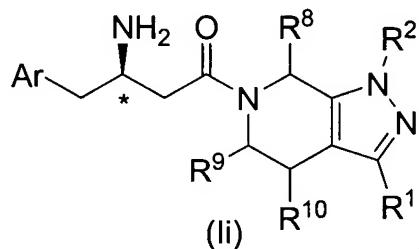


8. (original) The compound of Claim 6 wherein R9 and R10 are hydrogen.

9. (original) The compound of Claim 1 of the structural formula Ih

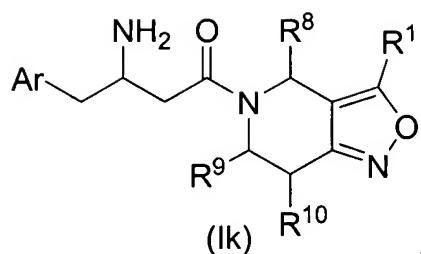


10. (original) The compound of Claim 9 of the structural formula Ii wherein the carbon atom marked with an * has the *R* stereochemical configuration

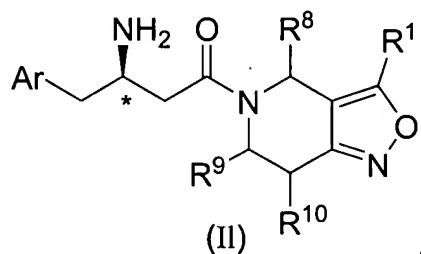


11. (original) The compound of Claim 9 wherein R9 and R10 are hydrogen.

12. (original) The compound of Claim 1 of the structural formula Ik

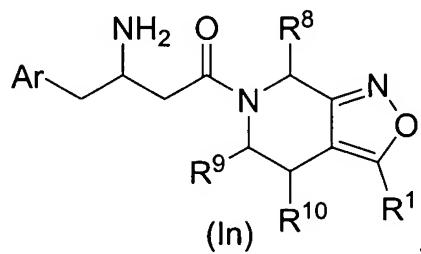


13. (original) The compound of Claim 12 of the structural formula II wherein the carbon atom marked with an * has the *R* stereochemical configuration

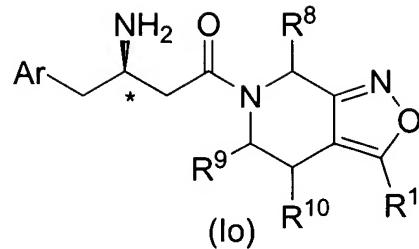


14. (original) The compound of Claim 12 wherein R⁹ and R¹⁰ are hydrogen.

15. (original) The compound of Claim 1 of the structural formula In

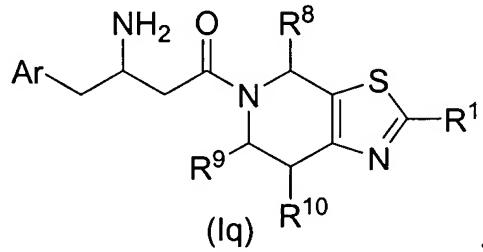


16. (original) The compound of Claim 15 of the structural formula Io wherein the carbon atom marked with an * has the *R* stereochemical configuration

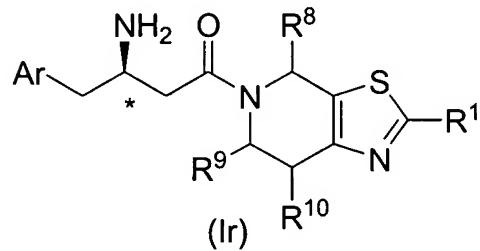


17. (original) The compound of Claim 15 wherein R9 and R10 are hydrogen.

18. (original) The compound of Claim 1 of structural formula Iq

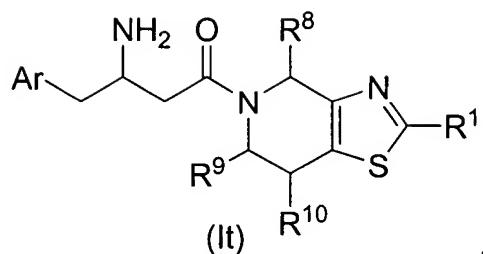


19. (original) The compound of Claim 18 of the structural formula Ir wherein the carbon atom marked with an * has the R stereochemical configuration

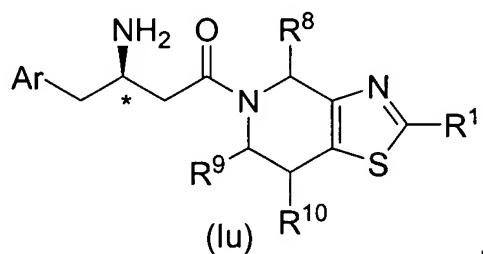


20. (original) The compound of Claim 18 wherein R9 and R10 are hydrogen.

21. (original) The compound of Claim 1 of the structural formula It

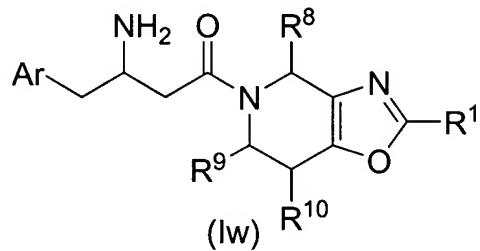


22. (original) The compound of Claim 21 of the structural formula Iu wherein the carbon atom marked with an * has the *R* stereochemical configuration

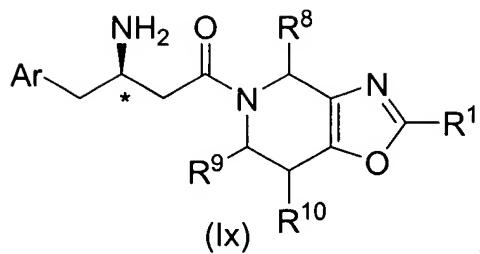


23. (original) The compound of Claim 21 wherein R9 and R10 are hydrogen.

24. (original) The compound of Claim 1 of the structural formula Iw

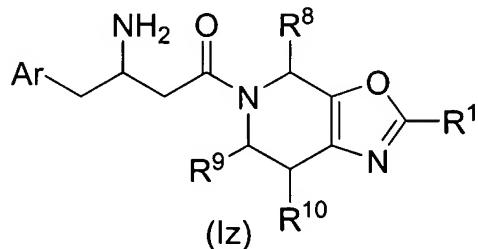


25. (original) The compound of Claim 24 of the structural formula Ix wherein the carbon atom marked with an * has the *R* stereochemical configuration

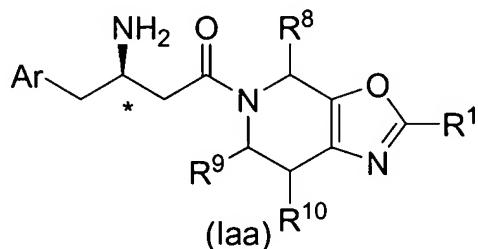


26. (original) The compound of Claim 24 wherein R⁹ and R¹⁰ are hydrogen.

27. (original) The compound of Claim 1 of the structural formula Iz

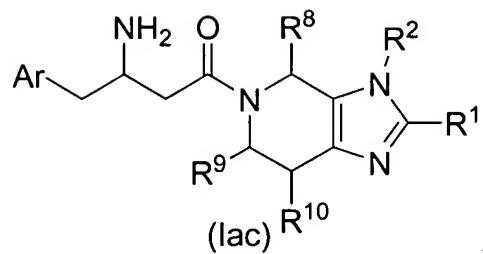


28. (original) The compound of Claim 27 of the structural formula Iaa wherein the carbon atom marked with an * has the R stereochemical configuration

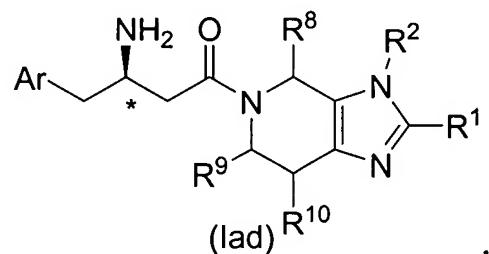


29. (original) The compound of Claim 27 wherein R⁹ and R¹⁰ are hydrogen.

30. (original) The compound of Claim 1 of the structural formula Iac

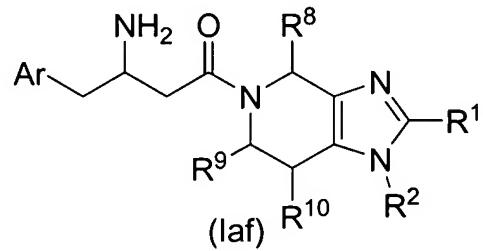


31. (original) The compound of Claim 30 of the structural formula Iad wherein the carbon atom marked with an * has the *R* stereochemical configuration

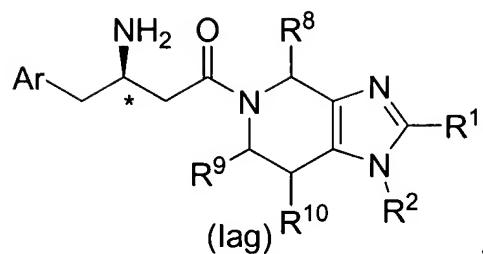


32. (original) The compound of Claim 30 wherein R⁹ and R¹⁰ are hydrogen.

33. (original) The compound of Claim 1 of the structural formula Ia

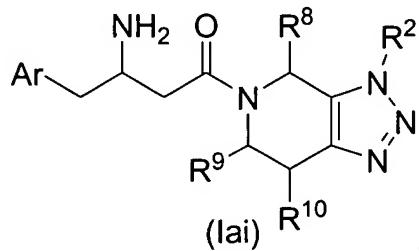


34. (original) The compound of Claim 33 of the structural formula Ig wherein the carbon atom marked with an * has the *R* stereochemical configuration

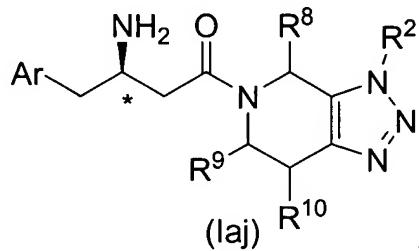


35. (original) The compound of Claim 33 wherein R⁹ and R¹⁰ are hydrogen.

36. (original) The compound of Claim 1 of the structural formula Iai

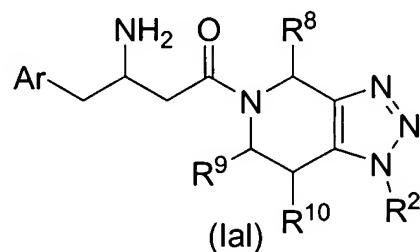


37. (original) The compound of Claim 36 of the structural formula Iaj wherein the carbon atom marked with an * has the R stereochemical configuration

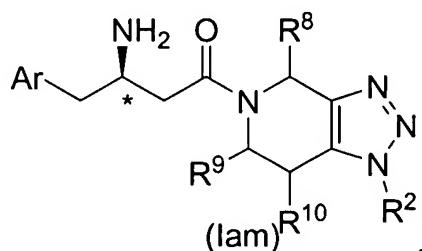


38. (original) The compound of Claim 36 wherein R⁹ and R¹⁰ are hydrogen.

39. (original) The compound of Claim 1 of the structural formula Ial



40. (original) The compound of Claim 39 of the structural formula Iam wherein the carbon atom marked with an * has the *R* stereochemical configuration



41. (original) The compound of Claim 39 wherein R⁹ and R¹⁰ are hydrogen.

42. (original) The compound of Claim 1 wherein R³ is selected from the group consisting of hydrogen, fluoro, chloro, bromo, trifluoromethyl, and methyl.

43. (original) The compound of Claim 1 wherein R¹ is selected from the group consisting of:

hydrogen,

halogen,

hydroxy,

C₁-10 alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents

independently selected from halogen or hydroxy,

C₂-10 alkenyl, wherein alkenyl is unsubstituted or substituted with one to five substituents

independently selected from halogen, hydroxy, COOH, and COOC₁-₆ alkyl,

(CH₂)_n-C₃-₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three

substituents independently selected from halogen, hydroxy, C₁-₆ alkyl, and C₁-₆ alkoxy,

wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and

(CH₂)_n-aryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, cyano, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens; and wherein any methylene (CH₂) carbon atom in R¹ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens;

44. (original) The compound of Claim 43 wherein R¹ is selected from the group consisting of

hydrogen,
methyl,
ethyl,
trifluoromethyl,
CH₂CF₃,
CF₂CF₃,
phenyl,
4-(methoxycarbonyl)phenyl,
4-fluorophenyl,
4-(trifluoromethyl)phenyl,
4-(methylsulfonyl)phenyl,
cyclopropyl,
fluoro,
chloro,
bromo, and
2-(methoxycarbonyl)vinyl.

45. (original) The compound of Claim 1 wherein R² is selected from the group consisting of
hydrogen,

C₁₋₆ alkyl, wherein alkyl is unsubstituted or substituted with one to five substituents independently selected from halogen or hydroxy,
(CH₂)_naryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, CN, hydroxy, NR⁷SO₂R⁶, SO₂R⁶, CO₂H, COOC₁₋₆ alkyl, C₁₋₆ alkyl, and
C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens; and
wherein any methylene (CH₂) carbon atom in R² is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

46. (original) The compound of Claim 45 wherein R² is selected from the group consisting of:

hydrogen,
methyl,
CH₂CF₃,
isobutyl,
4-(trifluoromethyl)benzyl, and
4-fluorobenzyl.

47. (original) The compound of Claim 1 wherein R⁸, R⁹, and R¹⁰ are independently selected from the group consisting of:

hydrogen,
C₁₋₁₀ alkyl, unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkoxy, and phenyl-C₁₋₃ alkoxy, wherein alkoxy is unsubstituted or substituted with one to five halogens,
(CH₂)_naryl, wherein aryl is unsubstituted or substituted with one to five substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens,

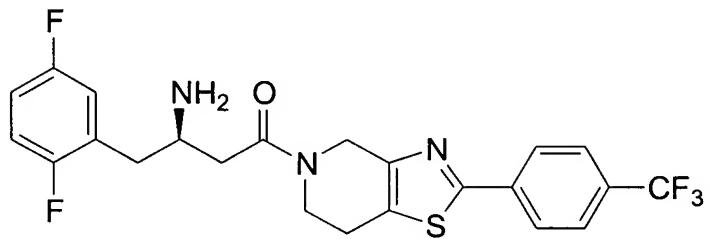
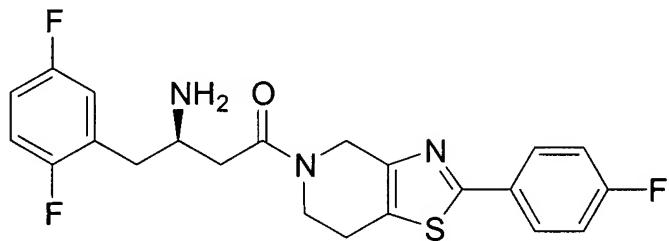
$(CH_2)_n$ -C₃₋₆ cycloalkyl, wherein cycloalkyl is unsubstituted or substituted with one to three substituents independently selected from halogen, hydroxy, C₁₋₆ alkyl, and C₁₋₆ alkoxy, wherein alkyl and alkoxy are unsubstituted or substituted with one to five halogens, and wherein any methylene (CH₂) carbon atom in R⁸, R⁹ or R¹⁰ is unsubstituted or substituted with one to two groups independently selected from halogen, hydroxy, and C₁₋₄ alkyl unsubstituted or substituted with one to five halogens.

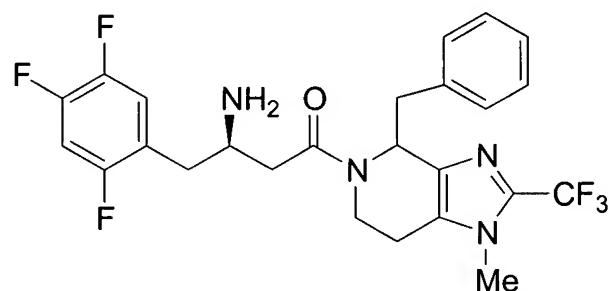
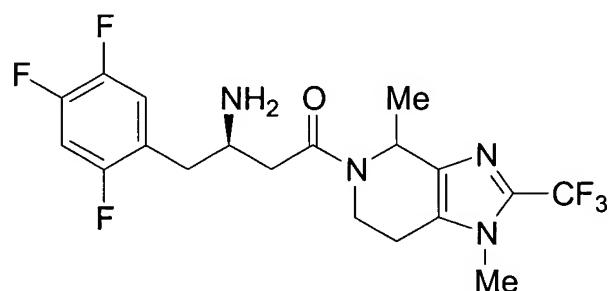
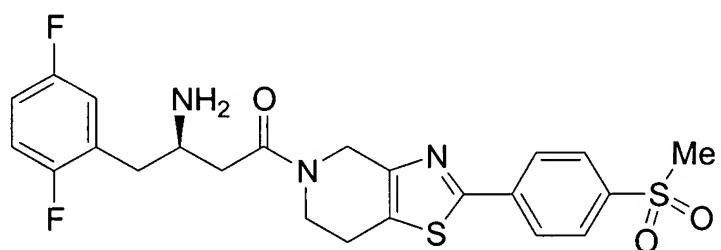
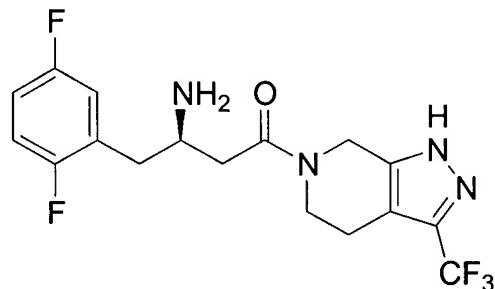
48. (original) The compound of Claim 47 wherein R⁸, R⁹, and R¹⁰ are each independently selected from the group consisting of

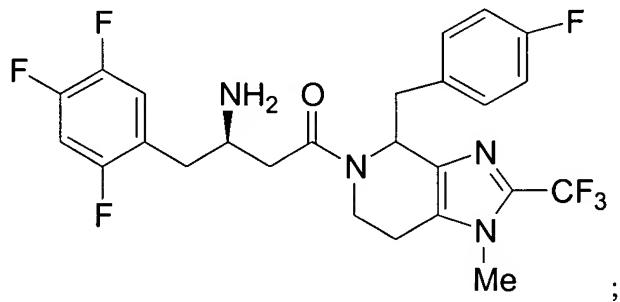
hydrogen,
trifluoromethyl,
methyl,
ethyl,
cyclopropyl,
CH₂-Ph, and
CH₂(4-F-Ph).

49. (original) The compound of Claim 48 wherein R⁹ and R¹⁰ are hydrogen.

50. (original) The compound of Claim 49 which is selected from the group consisting of:







or a pharmaceutically acceptable salt thereof.

51. (original) A pharmaceutical composition which comprises a compound of Claim 1 and a pharmaceutically acceptable carrier.

52. (previously cancelled)

53. (previously presented) A method for treating non-insulin dependent (Type 2) diabetes in a mammal in need thereof which comprises the administration to the mammal of a therapeutically effective amount of a compound of Claim 1.

54-56. (cancelled)